

# Spontaneous rupture of the renal cyst as the cause of hemorrhagic shock

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## KEY WORDS

kidney ► renal cyst ► spontaneous rupture ► hemorrhagic shock

## ABSTRACT

Spontaneous rupture of the kidney is a sporadically-occurring complication connected with cancer-related or cancer-unrelated kidney diseases. The study presents the case of a 53-year-old male patient who had had a kidney cyst diagnosed several years earlier, and was admitted to the hospital in a state of hypovolemic shock caused by spontaneous rupture of the kidney.

## INTRODUCTION

Spontaneous rupture of the kidney is a discontinuation either of the renal parenchyma or of the pyelocalyceal system, not caused by any prior injury. It may lead to the formation of subcapsular or retroperitoneal hematomas and/or urinomas. The cases described referred to chronic patients dialyzed in extreme renal failure, patients with systemic diseases leading to renal failure, and patients with kidney neoplasms.

Usually, spontaneous rupture of the kidney causes pain of the renal colic type, while the accompanying bleeding is insignificant and retreats spontaneously, with no operational intervention. The situation where the intensity of retroperitoneal hemorrhage poses a threat to life is very infrequent.

We have decided to focus on the case of rapid hemorrhage to the renal cyst resulting in kidney rupture and subsequent formation of a retroperitoneal hematoma.

## CASE REPORT

The patient, L.D., is a 53-year-old male (Main Register No. 10168) who, for nearly four years, was regularly examined urologically due to a simple cyst in the left kidney and sporadically-occurring microscopic hematuria. In the last examination, the diameter of the peripherally located cyst equaled approximately 3 cm. For several years, the patient had received treatment due to hypertension.

A few hours before admission to the hospital, sudden and injury-unrelated stomach pain occurred in the left part of the intra-abdominal cavity, and the overall condition of the patient deteriorated rapidly. Upon admission, the patient showed clear symptoms of oligovolemic shock.

Having stabilized the circulatory system, computed tomography was performed, which revealed an extensive hemorrhage of approximately 15 x 20 cm, coating the left kidney and in the half-length of the kidney merging with the renal cortex. Along the posterior abdominal wall, the hemorrhage reached the spleen, going down to the pelvis (Figs. 1 and 2).

The patient was urgently operated on. A lumbar incision provided access to the retroperitoneal space, revealing the extensive kidney-coating hemorrhage (Figs. 1 and 2).

Following the hemorrhage removal, the kidney with the post-rupture compartment was revealed. The compartment, together with the inferior bleeding, was treated classically (applying coagulation, sutures, and spongostan). No complication occurred after the operation. After 6 days, the patient was discharged home in the overall good condition and now remains under regular urological control.

## DISCUSSION

Spontaneous bleeding to the retroperitoneal space is an infrequent pathology. It may result from the rupture of the parenchymatous organ, or of the aortic aneurysm, as well as from complications in general diseases connected with blood coagulability



**Fig. 1.** CT abdominal examination (a cross section): left kidney and retroperitoneal hematoma.



**Fig. 2.** CT abdominal examination (a vertical section): left kidney and retroperitoneal hematoma.

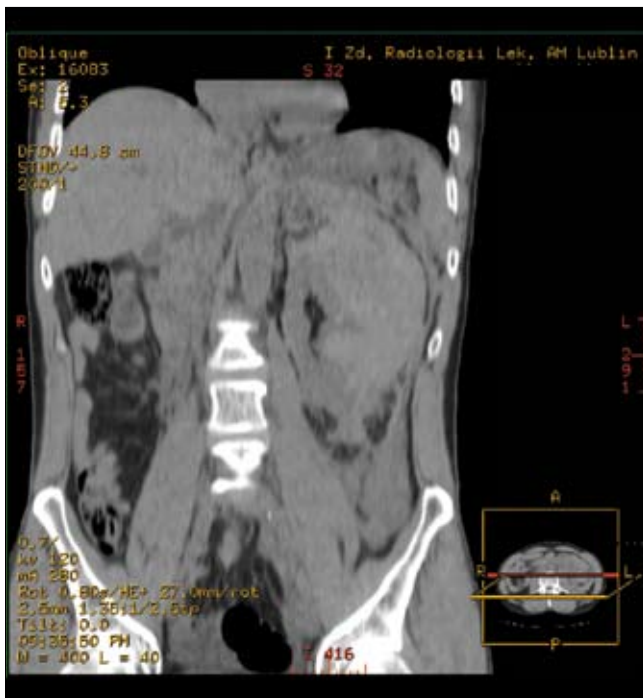


Fig. 3. Intraoperative view of retroperitoneal hematoma.

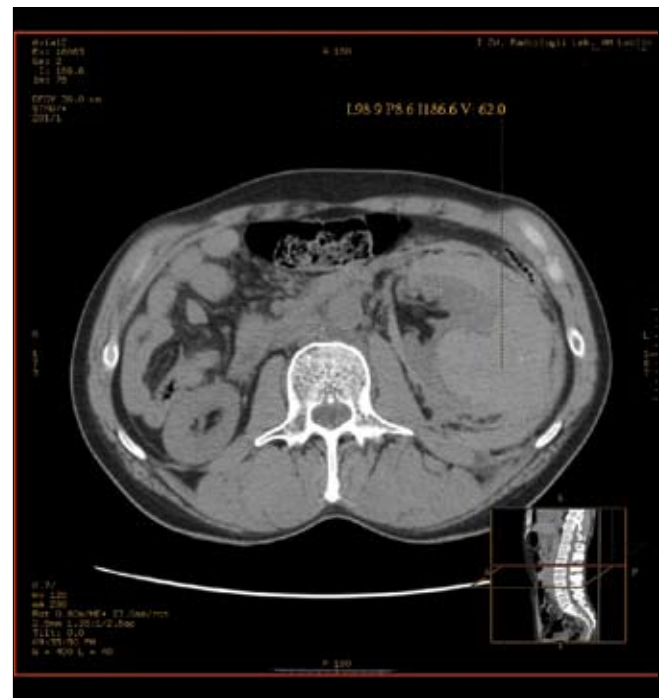


Fig. 4. Intraoperative view of rupture renal cyst.

disorders [1]. Parenchymatous bleeding is usually related to kidney rupture [2]. The first detailed clinical picture of spontaneous rupture of the kidney with a perirenal hematoma was presented in 1856 by Wunderlich [3]. In the majority of cases described so far, the retroperitoneal bleeding discussed has been caused by renal tumor rupture. According to Dougal, who examined 78 individual cases, renal tumor rupture was the cause in as many as 58% of cases, while vessel diseases accounted for 18% and infections for 10% of all cases of retroperitoneal bleeding [4]. Similar results were reported by other medical scientists. Cinman indicated the coexistence of a tumor in 63% of all cases of kidney bleeding [5]. In the examination by Daskalopoulos, this convergence reached 70%, and the histopathological type of tumor was hardly of any significance [1]. The mechanism of such ruptures still remains unclear but the pressure increase in the renal venous system, caused e.g. by a neoplastic embolus or by tumor pressure on the renal venous branches, may lead to kidney rupture [6]. In this article, we focus on the case where the patient had a "trivial" renal cyst diagnosed several years ago and, at the same time, suffered from malignant hypertension. In this case, rapid and spontaneous bleeding occurred to the cyst, followed by the cyst rupture, and eventually by retroperitoneal bleeding. The treatment applied in retroperitoneal bleeding depends on its causes and intensity. The results of scan examinations, such as diagnostic ultrasonography and computed tomography, are decisive in this respect. Nephrectomy may be recommended if a tumor is identified. Also in any other situation entailing intensive bleeding, and when the general condition of the patient is not stable, it is necessary to perform surgical intervention, or possibly selective embolization. For stable patients with no pathology revealed in the scan examination mentioned, we apply conservative treatment.

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